

Activity 2

Plate Boundaries and Plate Interactions

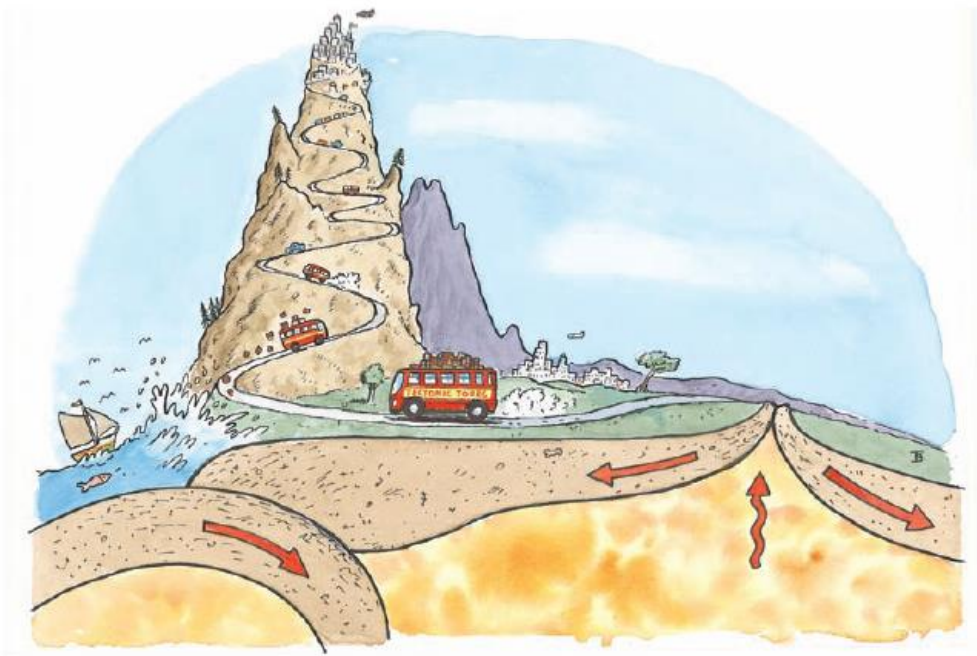
Think About It

Date

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- Where do you suppose you would have the most “interesting” ride on a plate? Would it be at the center, on a leading edge, on a trailing edge, or somewhere else on the plate?



WHAT DO YOU THINK?

Activity 2

Plate Boundaries and Plate Interactions

Digging Deeper

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Learning Objective: In writing, SWBAT describe the movement at a divergent plate boundaries, and relate the features formed using academic language.

Plate boundary

the place where two plates meet

3 type of plate boundaries

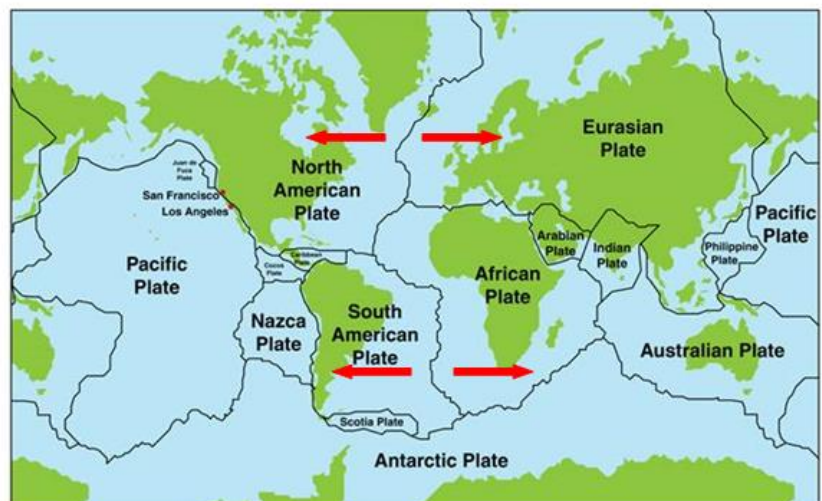
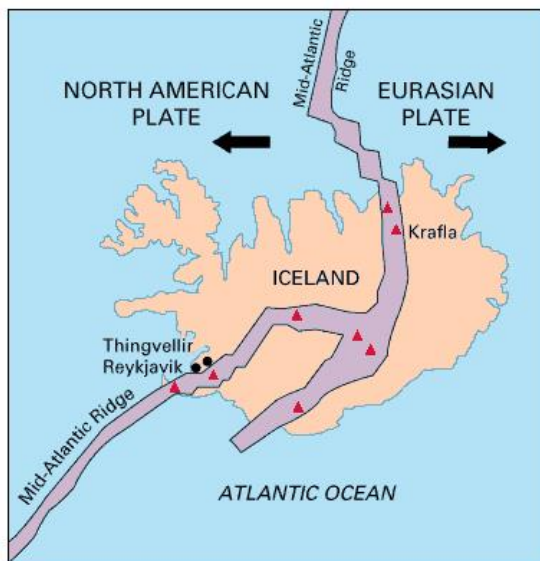
- divergent plate boundary
- convergent plate boundary
- transform plate boundary

Divergent plate boundary

a plate boundary where two plates move away from one another

Examples

- North American Plate and Eurasian Plate
- South American Plate and African Plate



Features formed at divergent boundaries

- mid-ocean ridges
- rift valleys

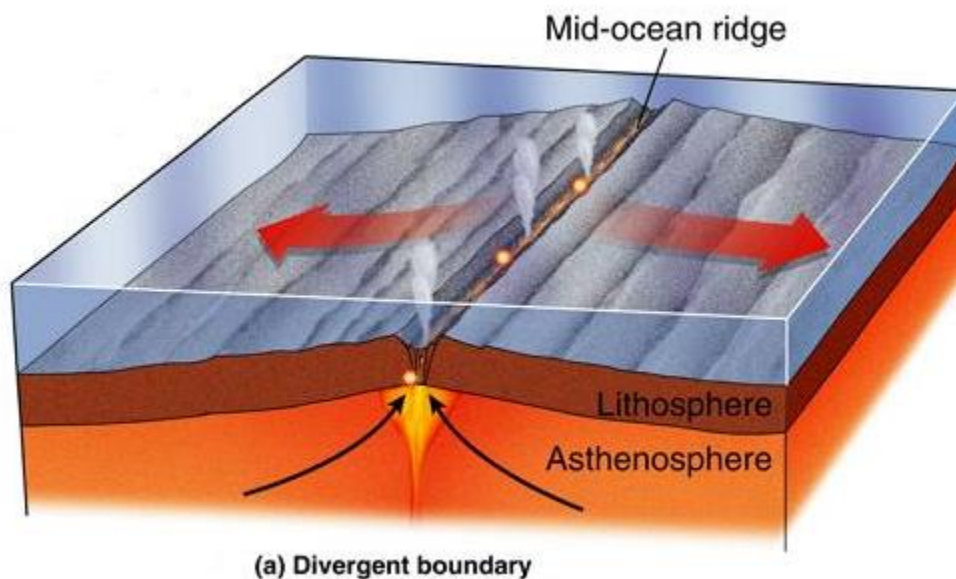
Mid-ocean ridges

chain of underwater volcanoes that forms where two plates are spreading apart

The magma rises up through the crack and forms the central valley of the mid-ocean ridge

Examples

- Mid-Atlantic Ridge
- East Pacific Rise

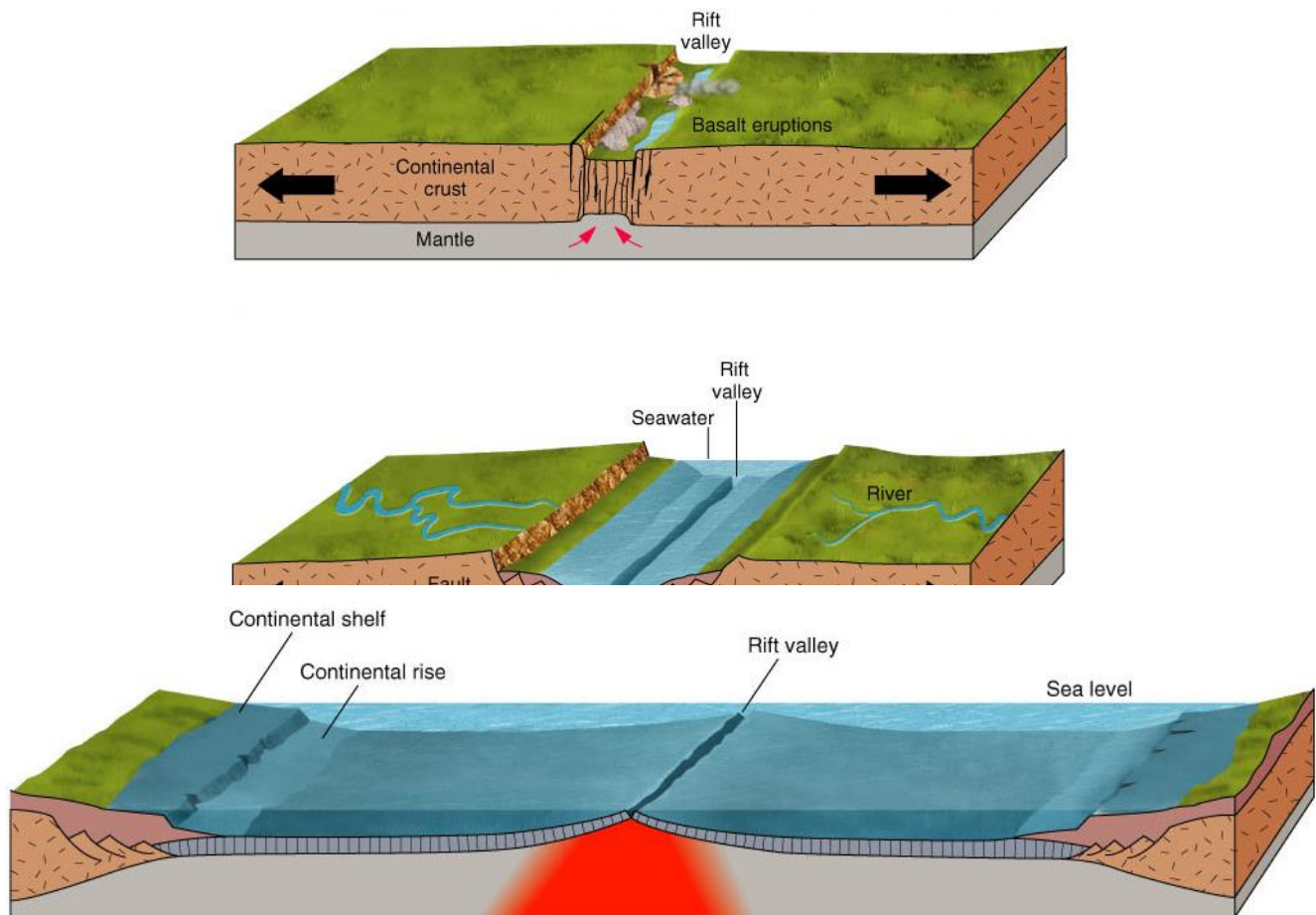


http://www.wwnorton.com/college/geo/animations/basic_plate_boundaries.htm

http://www.iris.washington.edu/hq/programs/education_and_outreach/aotm/11

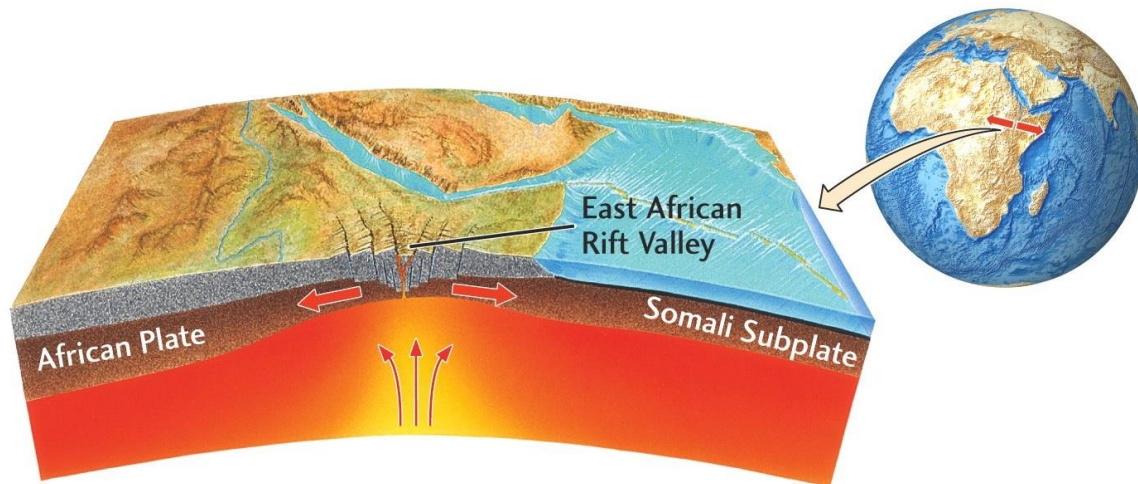
Atlantic Ocean

is getting wider as time goes as the seafloor continues to spread



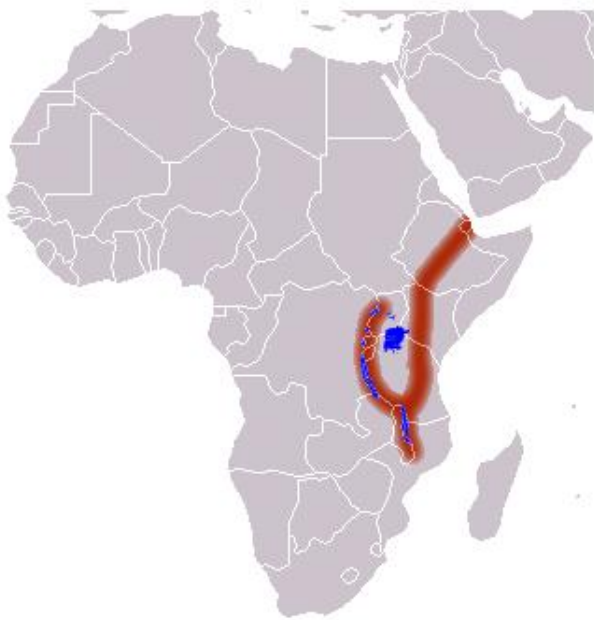
Rift valley

a valley that forms where plates are pulled apart



Example

Great Rift Valley in Africa



http://highered.mcgraw-hill.com/sites/0072402466/student_view0/chapter19/animations_and_movies.html#

Learning Objective: In writing, SWBAT describe the motions at the three types of convergent plate boundaries and relate the features formed at each using academic language.

Convergent plate boundary

a plate boundary where two plates move toward each another

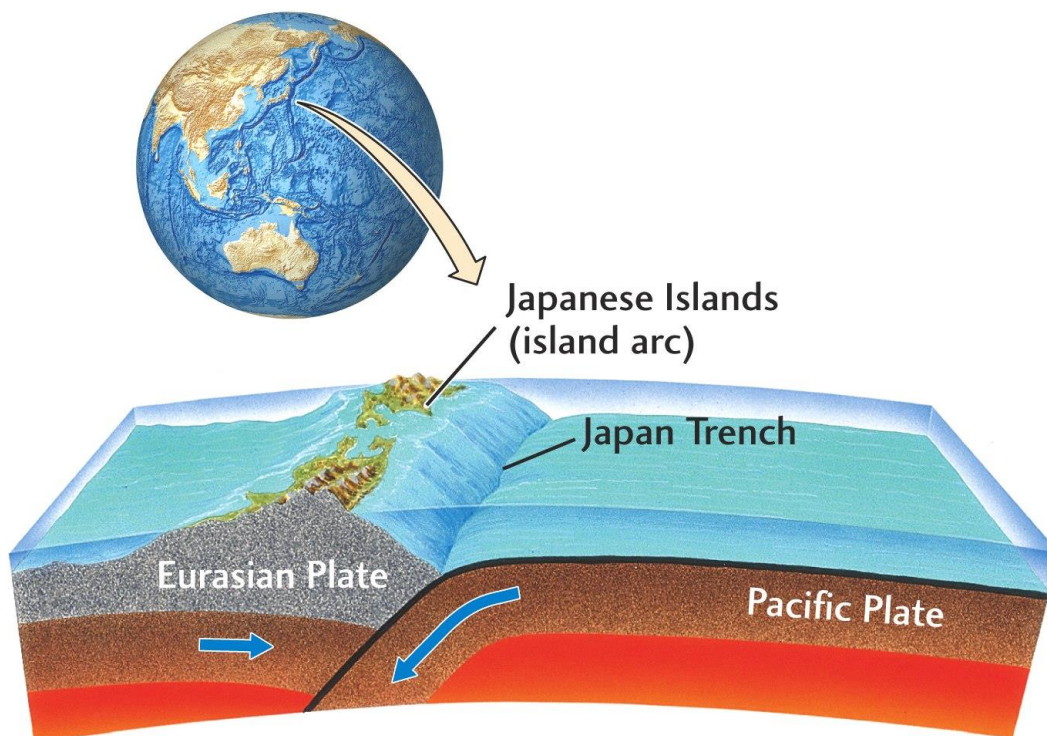
3 types of convergent boundaries

- ocean/ocean
- ocean/continent
- continent/continent

Ocean/ocean convergence

one ocean plate collides with another ocean plate

Both oceanic plates are dense so one plate goes underneath the other



<http://education.sdsc.edu/optiputer/flash/convergence2.htm>

<http://whs.moodledo.co.uk/file.php/1365/EarthSystems/Earth%20Systems/Island%20Arcs%20at%20Destructive%20Plate%20Margins.swf>

http://esminfo.prenhall.com/science/geoanimations/animations/35_VolcanicAct.html

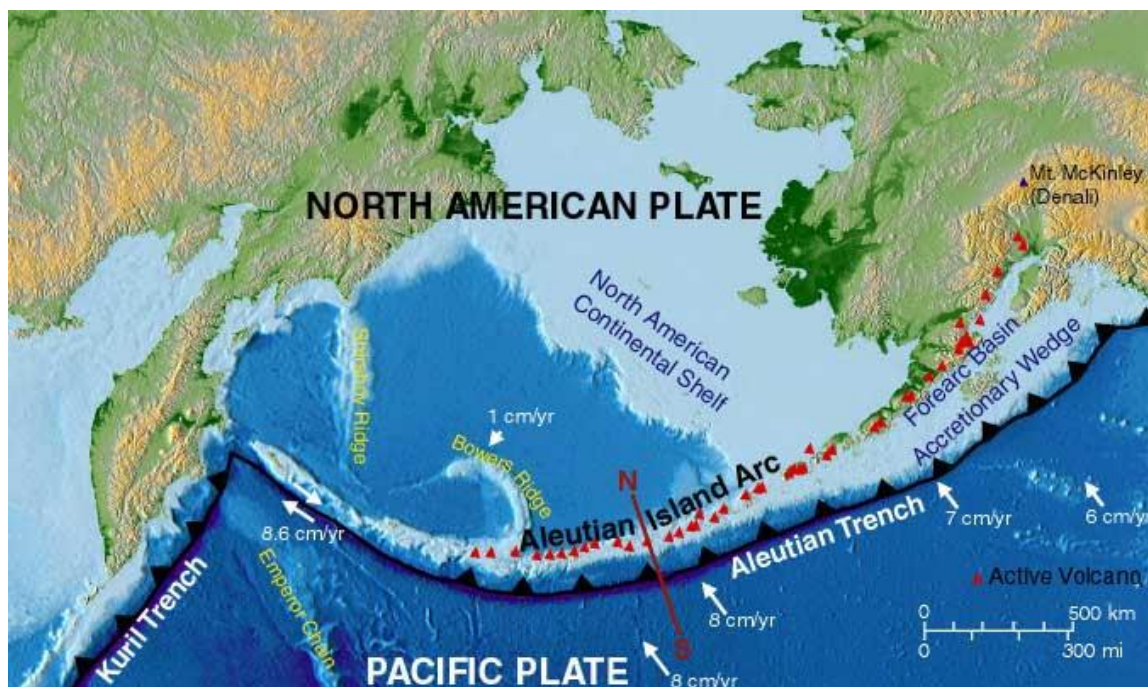
Examples

Pacific Plate and:

- Philippine Plate
- North American Plate

Ocean/ocean
features formed

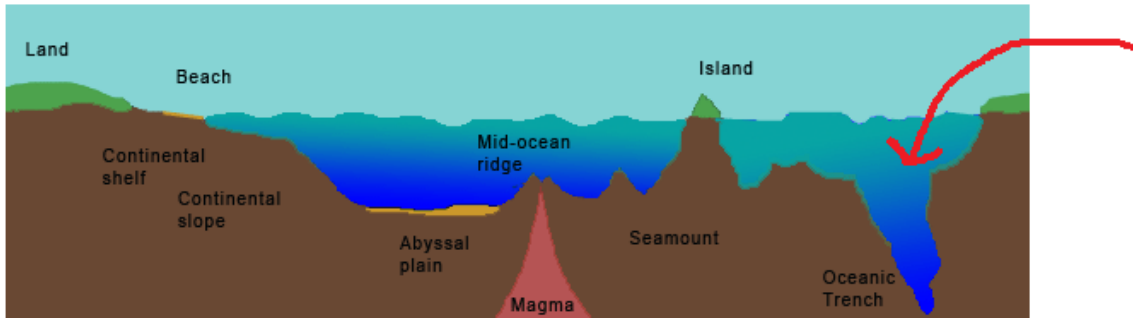
- island arc volcanoes (Japan, Aleutian islands of Alaska)
- deep sea trenches (Japan Trench, Aleutian trench)



Trench

a valley on the ocean floor

It forms where an ocean plate moves under another plate



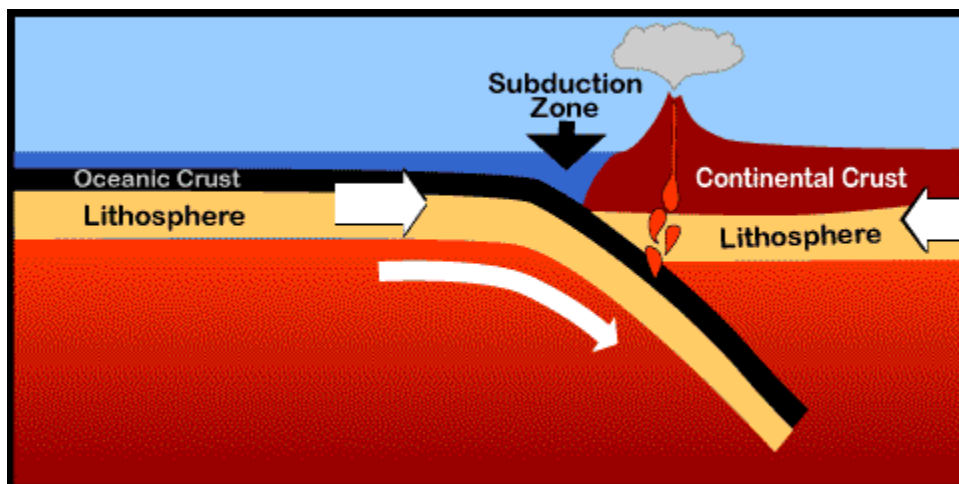
Subduction

the movement of an ocean plate under another plate

Subduction zone

an area where an ocean plate moves under another plate

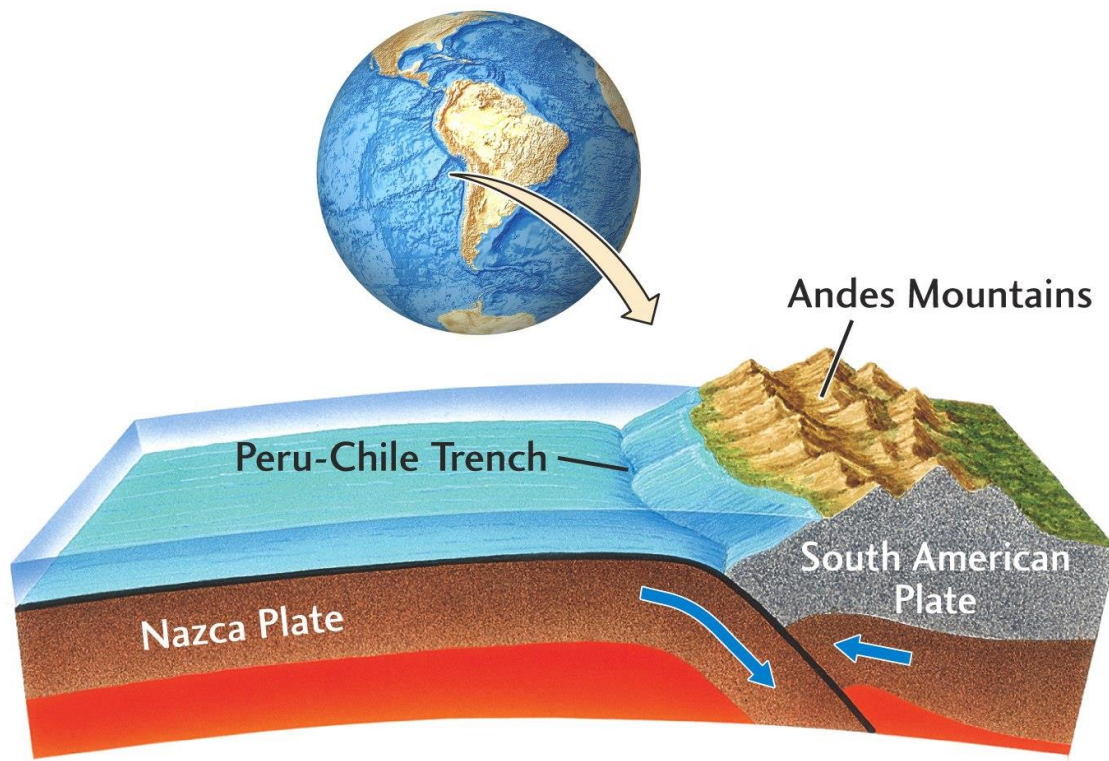
It can form in the middle of the ocean and along the edges of continents



Oceanic/continental
convergence

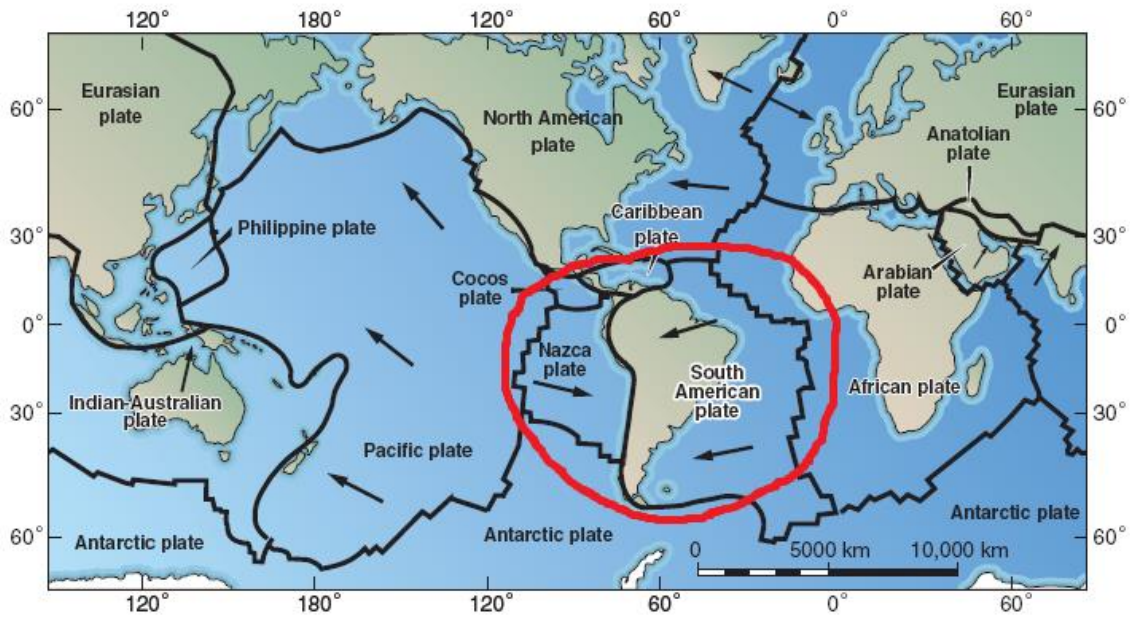
when a denser ocean plate
collides with a less dense
continental plate

The oceanic plate is denser, so it
sinks underneath the continental
plate



http://education.sdsc.edu/optiputer/flash/subduction_5.htm

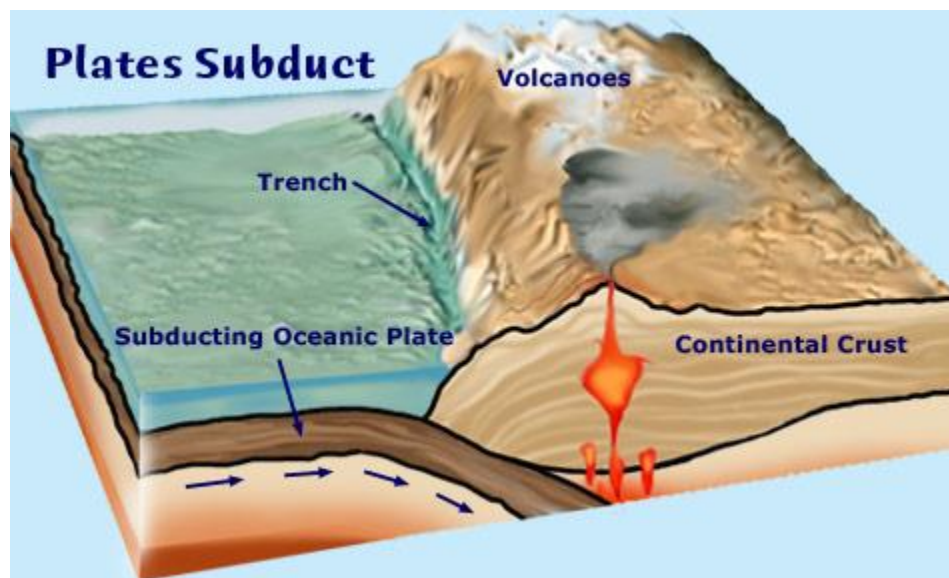
http://esminfo.prenhall.com/science/geoanimations/animations/35_VolcanicAct.html



<http://www.phschool.com/webcodes10/index.cfm?fuseaction=home.gotoWebCode&wcprefix=cul&wcsuffix=3094>

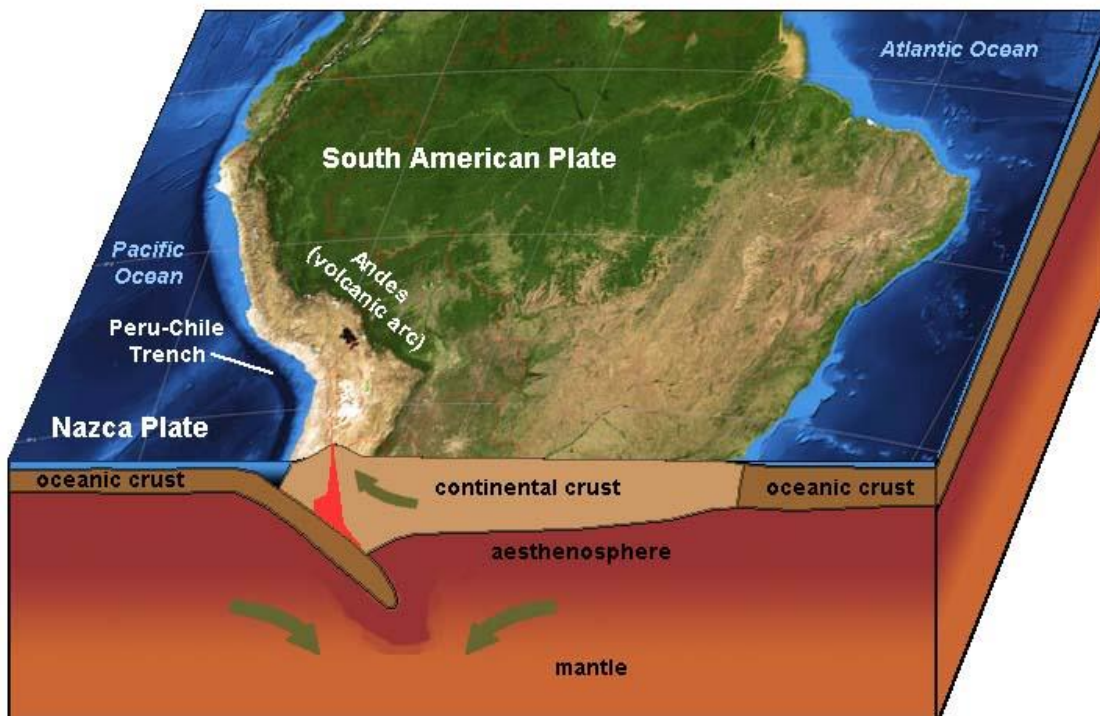
Example

Nazca Plate and South American Plate



Ocean/continental
features formed

- continental volcanic arc (Andes Mountains in South America)
- deep sea trench (Peru-Chile Trench)

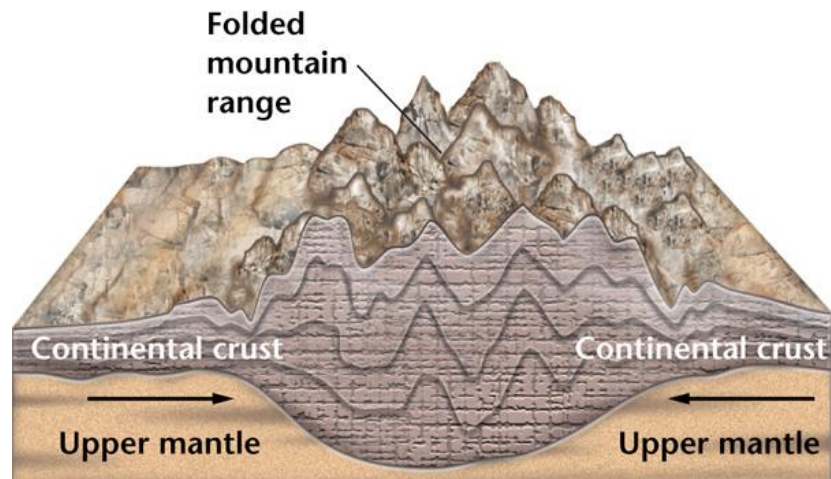


<http://www.phschool.com/webcodes10/index.cfm?fuseaction=home.gotoWebCode&wcprefix=cul&wcsuffix=3095>

Continental/continental convergence occurs when two continental plates collide

Both plates are less dense than the material in the asthenosphere, so there is little or no subduction

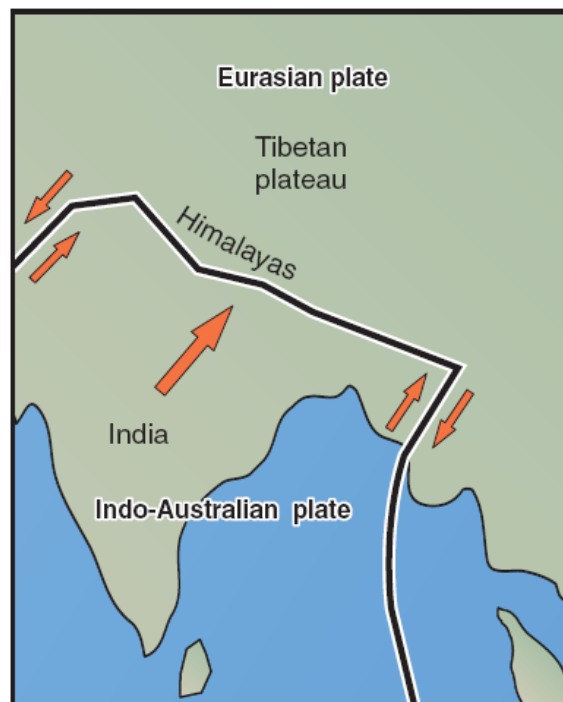
Instead, the plates crumple up and form mountain ranges



http://highered.mcgraw-hill.com/sites/0072402466/student_view0/chapter19/animations_and_movies.html#

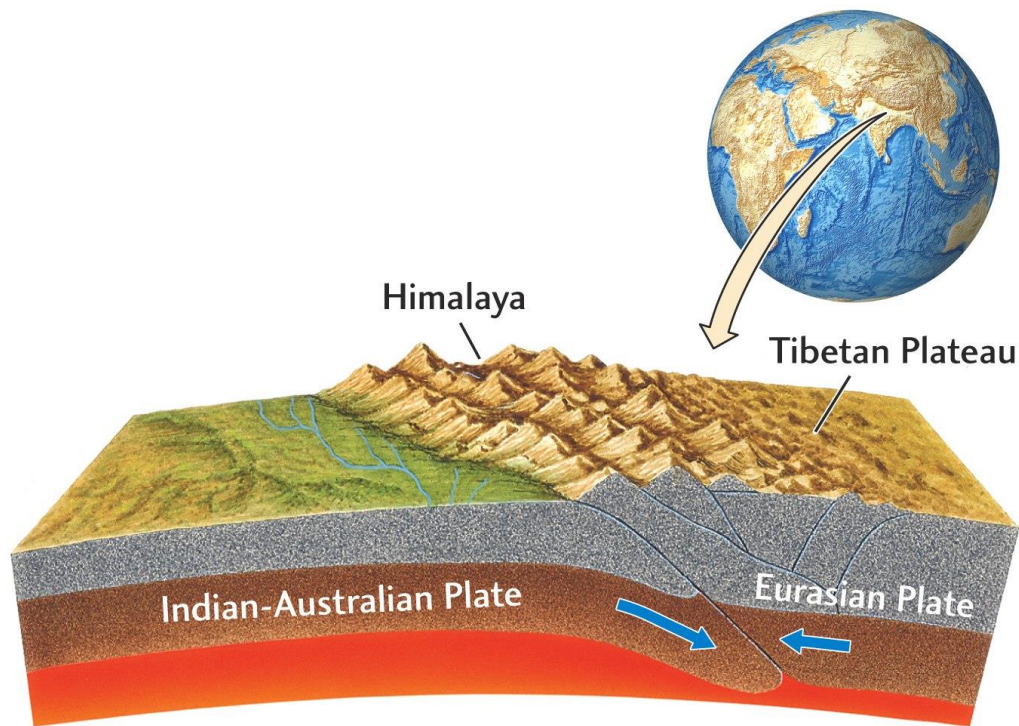
Example

Indian Plate and Eurasian Plate



Continental/
continental features
formed

mountain ranges (Himalayas)



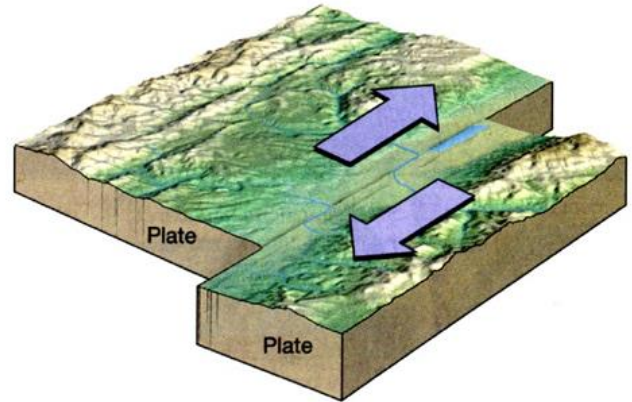
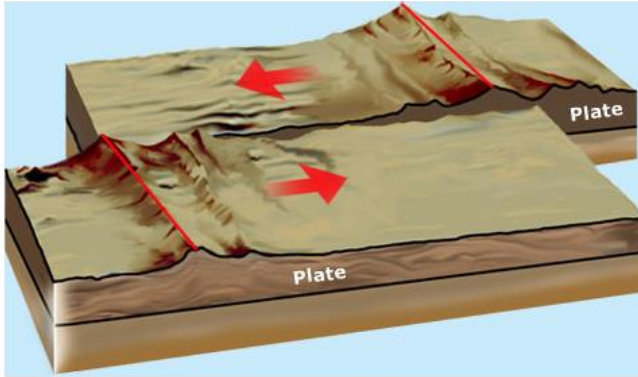
<http://education.sdsc.edu/optiputer/flash/indiaMove.htm>

http://www.classzone.com/books/earth_science/terc/content/visualizations/es1105/es1105page01.cfm?chapter_no=visualization

Learning Objective: In writing, SWBAT describe the movement at a transform plate boundary and relate the features that occur using academic language.

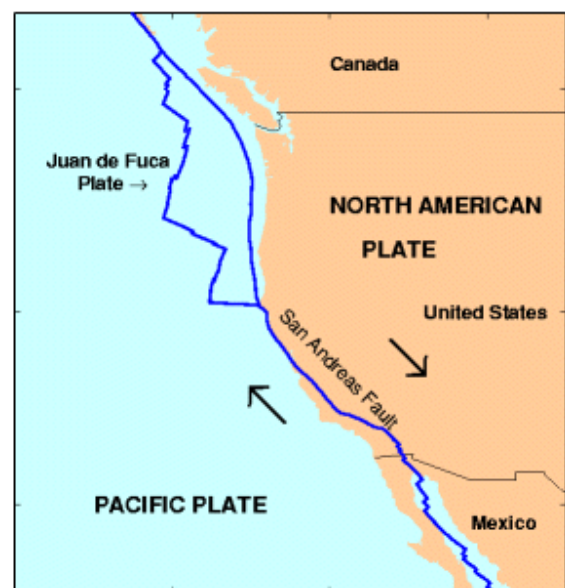
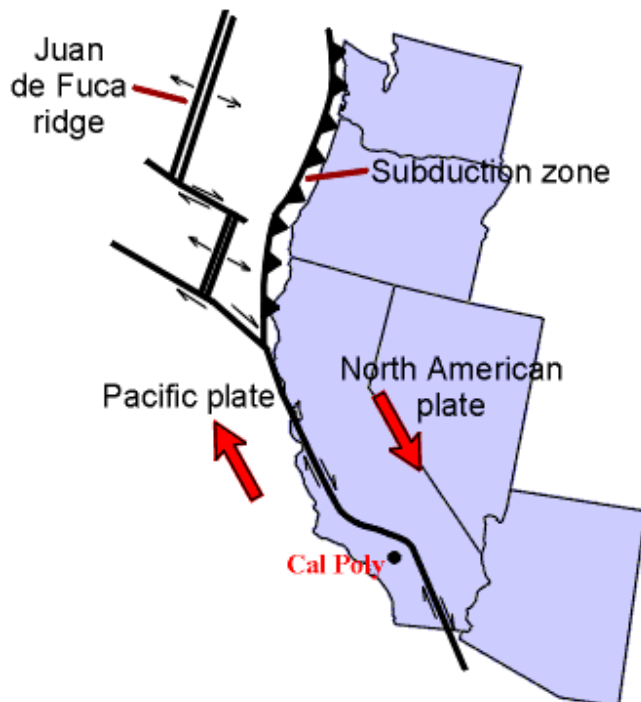
Transform plate boundary

a plate boundary where two plates slide past each other



http://www.classzone.com/books/earth_science/terc/content/visualizations/es0804/es0804page01.cfm?chapter_no=visualization

http://www.wwnorton.com/college/geo/animations/basic_plate_boundaries.htm



Example

Pacific Plate and North American
Plate (San Andreas Fault)

<http://www.geolsoc.org.uk/Plate-Tectonics/Chap3-Plate-Margins/Conservative/San-Andreas-Fault>

Features at transform boundaries powerful earthquakes

Activity 2

Check Your Understanding

Date

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1. Name the three types of boundaries between lithospheric plates.
2. Explain how the Himalayan Mountains formed.
3. Convergent plate boundaries can be in three different settings. What are they?
4. Where does subduction occur? What features can form because of subduction?